

What is claimed is:

1. An integrated cell searcher comprising:
 - a first code generator which generates first codes for cell searching in a non-synchronous mode;
 - a second code generator which generates second codes for cell searching in a synchronous mode;
 - a signal selector which receives the first codes and the second codes, and selectively outputs either of the first codes or second codes, in response to a mode selection signal; and
 - a plurality of correlators which receive and correlate a code from a base station and the selected codes, respectively.
2. The integrated cell searcher of claim 1, wherein the first codes, second codes and code from the base station are pseudonoise (PN) codes.
3. The integrated cell searcher of claim 1, wherein each of the plurality of correlators further comprises:
 - a despreader which despreads the code received from a base station and the codes output from the signal selector and outputs a despreading result;
 - a synchronization accumulative register which receives signals from the despreader, accumulates the received signals in synchronization with a clock signal, and stores an accumulation result;
 - an energy converter which converts a signal output from the synchronization accumulative register into an energy signal; and
 - a non-synchronization accumulative register which accumulates signals output from the energy converter and stores an accumulation result.
4. The integrated cell searcher of claim 1 further comprising:
 - a peak detector which receives correlation results from the correlators and identifies which among the selected codes yielded the best correlation.

5. An integrated cell searcher comprising:
a first code generator which generates first codes for cell searching in a first communication mode;
a second code generator which generates second codes for cell searching in a second communication mode;
a signal selector which receives, buffers, and selectively outputs the first codes and the second codes in response to a mode selection signal; and
a plurality of correlators which receive and correlate a code from a base station and the selected codes, respectively.

6. The integrated cell searcher of claim 5, wherein the first codes, second codes and code from the base station are pseudonoise (PN) codes.

7. The integrated cell searcher of claim 5, wherein the first mode corresponds to UTMS and the second mode corresponds to CDMA.

8. The integrated cell searcher of claim 5 wherein the plurality of correlators are caused to perform cell searching for the first communication mode or the second communication mode depending on whether the first codes or the second codes are selected by the signal selector.

9. The integrated cell searcher of claim 5, wherein the signal selector comprises:
a plurality of N-bit registers which serially receive and buffer the first codes;
a plurality of multiplexers which selectively output ones from among the first codes stored in the N-bit registers in synchronization with a clock signal;
and
a selector which receives and selectively outputs either the selected ones of the first codes or the second codes, in response to a mode selection signal.

10. The integrated cell searcher of claim 8, wherein the clock signal has an N times higher frequency than a nominal clock signal of a multi-mode modem with which the integrated cell can be used.

11. The integrated cell searcher of claim 5, wherein each of the correlators comprises:

- a despreader which despreads the code received from the base station and the selected codes from the signal selector and outputs a despreading result;

- a synchronization accumulative register which receives signals from the despreader, accumulates the received signals in synchronization with a clock signal, and stores an accumulation result;

- an energy converter which converts a signal output from the synchronization accumulative register into an energy signal; and

- a non-synchronization accumulative register which accumulates signals output from the energy converter and stores an accumulation result.

12. The integrated cell searcher of claim 5 further comprising:

- a peak detector which receives signals from the correlators and identifies which among the selected codes yielded the best correlation.

13. An integrated cell searcher of a dual mode modem, which supports first and second communication modes, the integrated cell searcher comprising:

- first code means for generating first PN codes used in a first communication mode cell searching process;

- second code means for generating second PN codes, used in a second communication mode cell searching process;

- PN selection means for selectively outputting the first PN codes or the second codes in response to a mode selection signal; and

- correlator means for correlating a code signal received from a base station with the selected PN codes, respectively.

14. A method for cell searching using a dual mode modem comprising:
- generating first codes for cell searching in a first mode;
 - generating second codes for cell searching in a second mode;
 - selecting between either the first codes or the second codes in response to a mode selection signal; and
 - correlating a code from a base station and the selected codes.
15. The method for cell searching using dual mode modem according to claim 14, wherein the correlating step further comprises:
- despreading the codes received from a base station and the selected codes and outputting a despreading result;
 - accumulating multiple instances of the despreading result in synchronization with a clock signal and storing an accumulation result;
 - converting the accumulation result into an energy signal;
 - accumulating multiple instances of the energy signal; and
 - storing an accumulation result.
16. The method for cell searching according to claim 14 further comprising:
- operating upon the correlation results to identify which among the selected codes yielded a best correlation; and
 - outputting a detection result.
17. The method for cell searching according to claim 14 wherein the first codes, second codes, and code from the base station are pseudonoise (PN) codes.
18. A method for cell searching according to claim 14 wherein the first mode is a non-synchronous mode and the second mode is a synchronous mode.
19. A method for cell searching according to claim 14 wherein the first mode corresponds to UMTS and the second mode corresponds to CDMA.